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An Intervention to Increase Father Involvement and Skills With Infants During the Transition to Parenthood

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This study examined whether a group educational intervention during the transition to parenthood can enhance the quality of father–child interaction and increase father involvement with their children. A randomized experimental design was used to evaluate an 8-session program with 165 couples who were first-time parents, beginning during the second trimester of pregnancy and ending at 5 months postpartum. Outcomes were assessed with time diaries, coded observations of parent–child play, and self-reports of fathers and mothers. The intervention had positive effects on fathers' skills in interacting with their babies and their involvement on work days but not home days. It is concluded that a relatively brief intervention during the transition to parenthood can improve fathering, and possible reasons for differential effects on areas of parenting are explored.

Keywords: fathering, father–child relationships, father interventions, father involvement

Despite a large literature on the impact of the transition to parenthood on married couples (e.g., Belsky & Kelly, 1994; Walzer, 1998), there is relatively little empirical research that specifically deals with the transition to fatherhood. A growing body of research has focused on men's relations with young children (for reviews, see Marsiglio, Amato, Day, & Lamb, 2000; Pleck, 1997), but little of this research addresses how these relations are forged during the critical period when men become fathers for the first time. Similarly, there is little research on whether educational interventions during the transition to fatherhood can make a difference in how fathers interact with their children. In this study we examine whether a theory-based educational intervention for new fathers and mothers can increase men's involvement with their children and enhance the quality of father–child interaction.

Much of what is known about the transition to fatherhood may be gleaned from relatively older studies that focused on how couples become parents and negotiate their new father and mother roles. May (1982) found that expectant fathers' perceived readiness for fatherhood was related to their view of the stability and quality of their marital relationships, their financial situation, and whether they had accomplished their life goals in the childless period. Men who had doubts in two of these three areas did not commit themselves to the pregnancy and did not support their pregnant partners. Fein (1976) reported that the men who adjusted best to fatherhood had a coherent sense of their role, either as a breadwinner (and more distant) father or as a "nontraditional" actively involved father. Those who lacked such a coherent role definition were less satisfied as new fathers.

In a study using standardized self-reports and observations of father-child interactions, Feldman, Nash, and Aschenbrenner (1983) found that the prepartum quality of marital relations was strongly associated with new fathers' caretaking and playfulness with infants, as were men's psychological rehearsal for the fathering role during the pregnancy and their lower job salience. The researchers also found that wives' pregnancy experience, compared with that of their husbands, was somewhat more predictive of later fathering patterns. Specifically, wives' continued engagement in the world and their low pregnancy anxiety predicted greater father involvement after birth. Two family-of-origin factors were also important: Men who reported positive relations with their own mothers were more playful with their babies, and women with good relations with their own fathers had husbands who engaged in more infant care.

In one of the few examinations of intergenerational influences on new fathering, Cox et al. (1985) found that men's observed parenting skills were predicted by how much they perceived their own fathers to be supportive of their autonomy and how much they perceived their mothers to be sensitive to their needs. For both new fathers and new mothers, the quality of the relationship with the same-sex parent (reported during pregnancy) was the most important

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predictor of subsequent parenting skill, measured as sensitivity to the baby and appropriateness of responses to the baby.

Other research relevant to the transition to fatherhood has been primarily concerned with couple adjustment. This literature, however, yields consistent, albeit indirect, findings demonstrating the challenges new fathers face during this period. Of the major longitudinal studies in this area, Cowan and Cowan (1992) had the strongest focus on fathering. Their research demonstrated how the evolution of the father's new role was thoroughly intertwined with the mother's expectations and with how mother and father negotiated the man's role. Tension over father involvement and differential workloads was nearly universal in the sample. Fathers expected new mothers to be immediately competent in baby care, but neither fathers nor mothers expected fathers to be competent, and neither gave men much time for uncertainty and stumbling before the wives or other family members stepped in. The more satisfactory the marriage relationship was perceived to be before the birth, the more the father was involved with the baby.

In an earlier phase of their research, Cowan, Cowan, Coie, and Coie (1978) reported that during the transition to parenthood, couples tended to move toward a more traditional division of roles. Entwisle and Doering (1981) studied couples from the late stages of pregnancy to 6 months after birth and found as well that new fathers and mothers often shift toward a more traditional role structure. Further evidence of traditionalization was provided by LaRossa and LaRossa (1981), whose sample included husbands and wives who had become parents for the first or second time. Analyzing interviews from the 3rd, 6th, and 9th months postpartum, these authors noted that the division of infant care in the homes generally was fairly traditional and became more traditional as time went on. Moreover, the language that couples used to account for how they divided infant care (e.g., "I/he help(s) out more than most husbands do") cognitively organized and seemed to facilitate the couples' traditionalization (see also Walzer, 1998).

The emphasis often given to new fathers' economic provider role, and the ease with which men's comparatively smaller amount of caregiving is explained away, fit with the idea that there is a socially constructed consensus that fathers should have a distinctive concern about the financial security of their families and that fathers are less naturally competent as caregivers than mothers (Jordan, 1995). These beliefs help maintain the cultural expectation that actively involved mothering is core to a woman's identity after she gives birth, whereas economic providing is central to a father's identity (Ihinger-Tallman, Pasley, & Beuhler, 1995). Besides the Cowan and Cowan (1992) project, we found only one other experimental study that intervened both before and after the transition to fatherhood (Wolfson, Lacks, & Futterman, 1992). This study focused specifically on infant sleep patterns, which were improved when fathers received the educational program.

The current study is an extension of previous work by our team involving development of a conceptual model of influences on responsible fathering (Doherty, Kouneski, & Erickson, 1998) and intervention strategies and measurement tools for parent–infant interaction (Erickson, Korfmacher, & Egeland, 1992), as well as exploration of the social construction of fatherhood during the transition to parenthood (LaRossa & LaRossa, 1981). We developed an educational intervention for first-time fathers that is based on the systems, ecological frameworks described by Parke (1996) and Doherty et al., (1998), in which the behaviors of fathers, mothers, and children are viewed within an interdependent web of personal, relational, and community influences, and in which paternal involvement includes cognitive and affective domains as well as observable behaviors. The most important implication of this conceptual framework for the present study is that an educational intervention for the transition to parenthood should have multiple components, including involvement of mothers; a focus on the coparental relationship; and an emphasis on the development of father role identity, knowledge, and skills. The contextual factors in the model were covered in the curriculum through attention to cultural and work setting factors that influence parenting.

Method

Participating Couples

We recruited couples from a local health maintenance organization's obstetrical clinics on the basis of four criteria: both partners over age 18, married or cohabiting, in the second trimester, and expecting their first child (for both partners). Recruitment occurred through fliers handed to patients by nursing staff, through letters sent directly to patients, and through local radio and television announcements. Couples were told that this was an educational research project designed to test a curriculum aimed at increasing father involvement and mother–father cooperation during the transition to parenthood. In accord with the policies of the Institutional Review Boards of the health maintenance organization and the affiliated university, participants either gave consent to be contacted by the researchers or they phoned the research project directly. Participants gave informed consent prior to assessment and agreed to be assigned randomly to the intervention or control group.

On the basis of power analyses described later, we recruited 165 eligible couples, obtained their consent to participate in either the intervention group or the control group, and then used a table of random numbers to assign them to the intervention and control groups. We randomly oversampled participants at a proportion of 5/4 for the intervention group versus the control group because we anticipated more dropouts from the intervention group on account of the greater demands on time and energy. The initial assignment was 95 couples to the experimental group and 70 to the control group. We experienced a 15% attrition rate ($N = 24$ couples) by the 12-month assessment, with 74 couples remaining in the intervention group and 67 continuing in the control group. Elimination of two intervention class groups (explained below) brought the final sample size at the 12-month postpartum assessment to 65 couples in the intervention group and 67 in the control group. A variety of analyses, based on demographic and other data from the first assessment (including measures of father attitudes and marital adjustment) indicated no significant differences between couples who remained in the study and those who dropped out. Similarly, the experimental and control groups remained equivalent on Time 1 variables after the elimination of couples in the two class groups.

The sample was mostly a middle-class group in education (over two thirds had college degrees) and income (over half earned more than $75,000 as a couple). There was a degree of racial and ethnic diversity: 26 couples (16% of the sample) were of mixed ethnicity and five couples (3%) were of the same non-White ethnicity (3 Black and 2 Asian-Pacific Islander). The median age for mothers was 30 years and for fathers, 31 years (ranges of 18–43 and 20–45 years, respectively). Among the couples, 156 were married and 9 were cohabiting.

The Intervention

The intervention group received eight educational sessions based on our theoretical model and implemented with a curriculum manual (available from the authors). The first session was an individual home visit, and the next seven were group sessions in clinics. The sessions commenced shortly after recruitment, with four occurring monthly prior to the birth of the child and four occurring during months 2–5 after the birth. In formulating the educational intervention, we sought to create an experience powerful enough to effect moderate differences in the outcome variables while also being logistically and economically feasible for community organizations to implement. On the basis of our team's experience with parent education, particularly the STEEP (Steps Toward Effective, Enjoyable Parenting) Program described earlier (Erickson et al., 1992) and previous successful intervention studies with fathers (McBride, 1991; McBride & Mills, 1993), we developed a curriculum that began in the second trimester, when couples typically start to focus more fully on the pregnancy and future parenting, and ended at about 5 months postpartum. The rationale for doing most of the intervention in groups is that group members can learn from and be encouraged by one another, and that the intervention becomes more cost effective if done primarily in groups. However, we also conducted an in-home session at the beginning of the intervention in order to tailor the intervention to each couple's needs and situation. Such home visits are becoming more commonplace in a number of states at the time of a birth of a child, and thus do not jeopardize the generalizability of our intervention program. The final sample included 17 couple groups in the intervention, taught by four teams of parent educators.

The curriculum is outlined in the Appendix. The major educational processes consisted of mini-lectures, group discussion, videotapes, demonstrations of skills, role playing, and use of new-parent role models. The hypothesized mechanisms of change in the intervention were based on our conceptual model's delineation of the major influences on fathering. Specifically, through the educational content and process, we hoped to enhance fathers' knowledge, skills, and commitment to the fatherhood role; to increase mothers' support and expectations for the fathers' involvement; to foster co-parental teamwork in the couple; and to have the couple deal more constructively with contextual factors such as work and cultural expectations.

The educational sessions were conducted by licensed parent educators who averaged 15 years of experience. We used pairs of male–female instructors in order to give fathers and mothers a same-gender teacher with whom they could relate. In keeping with our goal of evaluating an intervention that could be transported into community settings, we provided only the kind of training and ongoing support for parent educators that would be realistic in community settings: a 1-day orientation to the curriculum and monthly group meetings to troubleshoot problems and fine tune the curriculum to group needs.

Fidelity to the curriculum was assessed by checklists completed by parent educators after each session and by notes of an observer in each group. Self-report evaluations of the intervention were completed by the parents, the parent educators, and the observer assigned to each class group. We discovered that 2 of the 17 class groups were hampered by multiple problems: scheduling difficulties that required switching between locations, poor attendance, parent educator absence because of illness, and low evaluation scores. We concluded that these two groups (containing a total of 9 couples) did not receive an adequate intervention. We therefore dropped data from these two groups prior to beginning the outcome analyses. However, in the interests of full disclosure and in light of the emerging use of intent-to-treat intervention designs in intervention research, we also conducted outcome analyses with the two groups included in the analyses.

Outcome Variables

Our assessment methods included self-report questionnaires, a detailed time record, and observations of parent–child interaction. All measures were given to both fathers and mothers. At the first assessment prior to the birth of the child, we used an extensive battery of assessments, including measures of attitudes toward fathering, marital adjustment, psychological and physical well-being, parental stress, and family-of-origin factors. The focus of the current study is on the central outcome measures for fathers, gathered at 6 and 12 months postpartum.

Quality of father–child interaction was measured by means of videotaped home observations of parent–child play. Fathers were observed during a 5-min free-play situation with their baby. (Mothers were observed after fathers in the same exercise.) Each parent was alone with the child and the observer during the interaction. The research assistant brought a variety of age-appropriate toys to the parents' house, and asked each parent to engage in 5 min of play with the child. These interactions were videotaped and later rated by two graduate research assistants using the Parent Behavior Rating Scale, which is adapted from the work of Mahoney and Powell (1986); Thomas, Anderson, Getahun, and Cooke (1992); and Egeland, Erickson, and colleagues in the Minnesota Longitudinal Study of Parents and Children (Erickson & Egeland, 1990; Erickson, Sroufe, & Egeland, 1985; Pianta, Erickson, Wagner, Kreutzer, & Egeland, 1990). Six father variables each were coded on a 7-point scale: warmth/emotional support, intrusiveness, engagement with child, positive affect, negative affect, and dyadic synchrony (the meshing of behavior between parent and child). (Intrusiveness and negative affect were reverse scored in order to make higher scores indicate better quality on all of the variables.) Reliability was established by having two raters independently code 20% of the videotapes. We computed intraclass correlations to determine the reliability of the two raters. These correlations ranged from .82 to .99, with an average of .94. We examined the effects of the intervention on each quality variable separately and also summed them into an overall score, which had a Cronbach alpha of .84.

Father involvement was assessed by three variables identified by Pleck, Lamb, and Levine (1985) as the core elements of father involvement: engagement, accessibility, and responsibility. Engagement and accessibility were measured by the Interaction/Accessibility Time Chart (McBride, 1990, 1991; McBride & Mills, 1993). This measure was used because it gives a more detailed profile of parental involvement than other measures and has been used in other intervention studies with fathers. Instead of the original interview format, which proved very time intensive, we asked parents to complete time diaries prior to the 6-month and 12-month assessment periods, using a forced-recall technique to elicit detailed, hour-by-hour information about the most recent

workday and non-workday prior to the assessment. (We analyzed workday and non-workday scores separately.) Using a modified version of McBride's coding system, we coded for *direct engagement* (minutes of face-to-face interaction), *parallel engagement* (minutes doing another activity while with the baby), and *accessibility* (the total number of minutes the parent was physically available to the child, although not necessarily interacting). Two independent raters who rated a random 25% of the time diaries achieved agreement levels of 95%, that is, they coded the 15-min time intervals identically 95% of the time. Wical and Doherty (2005) reported a high degree of reliability between mother and father reports of father involvement in this sample of couples.

The *N*s for the time diary variables were lower than for the other outcome variables because some parents did not complete their diaries prior to the home visit, in which case we asked them to fill out the time diary for just the day preceding the assessment. Overall, we had a 32% not fully complete rate for time diaries. However, there were no significant differences between the intervention and control groups on noncompletion, and no significant differences on other outcome variables between completers and noncompleters.

The third father involvement variable, paternal responsibility, was measured by the McBride's (1990) Parental Responsibility Scale (PRS), a self-report questionnaire completed jointly by mothers and fathers. (The rationale for jointly completing the instrument is that McBride wanted to capture the couple's consensus on areas of responsibility.) The PRS lists 14 common child care tasks and asks the couple to designate who has primary responsibility for the task on a 5-point scale ranging from (1) *mother almost always* to (5) *father almost always. Responsibility* is defined for the respondents as remembering, planning, and scheduling the task. Scores can range from 14 to 70, with higher scores representing greater paternal responsibility for child care tasks. McBride and Mills (1993) reported Cronbach alpha reliabilities of .77 and .79 for mothers and fathers, respectively. For our study, we adapted the items, which were originally designed for parents of preschool children, to activities relevant to the child's age at the time of the measurement. The alpha reliability for our sample was .70.

Statistical Procedures

The desired sample size was determined in advance by power analysis. We anticipated a moderate effect size for the intervention, based on the use of normal volunteers, an educational rather than therapeutic intervention, and the use of community-based educators who would receive a modest level of training and supervision. For a mid-range effect size of .50 and a power of .80, we determined that we needed approximately 130 couples in the final analyses. In the statistical analyses for this study, there is adequate power for the quality of father–child interaction variables and the parental responsibility variable but not for the time involvement variables.

Results

Preliminary analyses (involving one-way analysis of variance [ANOVA] and chi-square statistics where appropriate) indicated no significant differences on baseline characteristics between the intervention group and the control group, indicating that the randomization procedure was successful. As mentioned before, attrition analyses examining baseline characteristics of dropouts revealed no significant differences between couples who remained in the study and those who dropped out or were deleted. Correlations across variables measuring the primary outcomes—father involvement and quality of father–child interaction—ranged from .02 to .30, indicating that they were tapping separate dimensions of father involvement.

Tables 1 and 2 summarized the core findings for the repeated measures ANOVAs for quality of father–child interaction and father involvement, respectively, with the two groups excluded that did not receive an adequate dosage of the intervention. For quality of father-child interaction, there were significant differences favoring the intervention group on warmth/emotional support, intrusiveness, positive affect, and dyadic synchrony. There were no significant differences on engagement with the child and negative affect. The overall quality score was significantly higher in the intervention group, with effect sizes of .47 at 6 months postpartum and .31 at 12 months.

For father involvement, as measured by the time chart, there was one significant intervention effect, for workday accessibility. Specifically, on days when they worked outside the home, fathers in the intervention group were more available to their babies than fathers in the control group. The effect sizes were .42 at 6-month assessment and .30 for 12 months. To translate the intervention effect into time units (averaging across the 6-month and 12-months assessments), intervention group fathers averaged 42 more minutes during which they were accessible to their infants on workdays.

The intervention and control groups did not differ on direct engagement or parallel interaction during workdays. Likewise, there were no group differences on any of the time chart variables for at-home days, that is, when fathers were not working for pay. There were no significant differences between the intervention and control groups on the Paternal Responsibility Scale.

In the intent-to treat analyses, Tables 3 and 4 present the findings with the two excluded groups now included (a total of 9 additional fathers). On quality of father–child interaction, there were still significant group effects for warmth/emotional support and dyadic synchrony, but the effects for positive affect, negative affect, intrusiveness, and overall quality, although all trending in the same direction, fell below the .05 level of statistical significance. (The p value for overall interactional quality was .08.) Perhaps more meaningful than levels of statistical significance are effect sizes. The effect size for overall interaction quality was reduced to .36 and .16 at 6 and 12 months, respectively, in the intent-to-treat analysis, down from .47 and .31 in the previous analysis that excluded two class groups.

For father involvement on the time chart, the intent-to-treat results were quite similar to the previous analysis. There was a significant intervention effect for workday accessibility. The effect size was .42 at 6 months, identical to the previous one, and .26 at 12 months, down from .30. These effects translate to 40 min more time that intervention group fathers were accessible to their infants averaged over the two follow-up assessment periods, as compared with 42 min with the two class groups excluded. The intervention

Table 1
Repeated Measures Analysis of Variance for Quality of Father–Child Interaction

Variable	Control group		Experimental group			
	M	*SD*	*M*	*SD*	*F*	*df*
Warmth and emotional support					3.85*	1, 125
Time 2	4.28	1.43	4.81	1.59		
Time 3	4.41	1.46	4.67	1.56		
Intrusiveness					4.87*	1, 125
Time 2	4.31	1.71	4.98	1.39		
Time 3	4.72	1.45	5.01	1.42		
Engagement with child					1.01	1, 125
Time 2	5.37	1.29	5.51	1.42		
Time 3	5.18	1.42	5.41	1.35		
Positive affect					6.51**	1, 125
Time 2	4.33	1.39	4.83	1.58		
Time 3	4.52	1.41	5.04	1.37		
Negative affect					1.72	1, 124
Time 2	6.62	0.76	6.81	0.49		
Time 3	6.77	0.66	6.82	0.49		
Dyadic synchrony					10.60***	1, 124
Time 2	2.86	1.40	3.72	1.91		
Time 3	3.08	1.33	3.63	1.68		
Overall quality					7.41**	1, 123
Time 2	27.55	6.22	30.66	7.14		
Time 3	28.63	6.29	30.59	6.37		

Note. Time 2 was at 6 months postpartum; Time 3 was at 12 months postpartum. Control group *n*s ranged from 62 to 64; experimental group $n = 63$. *N*s varied because of missing data on some scales.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2
Repeated Measures Analyses of Variance for Father Involvement

Variable	Control group		Experimental group			
	M	*SD*	*M*	*SD*	*F*	*df*
Paternal responsibility					0.29	1, 128
Time 2	35.09	5.28	35.92	3.63		
Time 3	35.69	4.59	35.63	4.06		
Home day involvement						
Engaged interaction					0.13	1, 85
Time 2	3.30	1.66	3.22	1.61		
Time 3	3.14	1.80	3.02	1.33		
Parallel interaction					1.04	1, 85
Time 2	1.97	1.51	2.14	2.36		
Time 3	2.44	1.64	2.96	1.99		
Total accessibility					0.04	1, 85
Time 2	14.75	2.31	14.33	2.18		
Time 3	14.17	2.44	14.43	2.01		
Work day involvement						
Engaged interaction					0.96	1, 88
Time 2	1.56	0.81	1.74	0.87		
Time 3	1.61	1.04	1.73	1.02		
Parallel interaction					3.66	1, 88
Time 2	0.53	0.66	0.87	1.01		
Time 3	0.63	0.68	0.77	0.83		
Total accessibility					4.82*	1, 88
Time 2	6.52	1.57	7.29	2.06		
Time 3	6.24	1.83	6.89	2.55		

Note. Time 2 was at 6 months postpartum; Time 3 was at 12 months postpartum. The Paternal Responsibility Scale *n*s were 65 for the control group and 65 for the experimental group. Time Chart *n*s ranged from 39 to 45 for the control group and from 45 to 48 for the experimental group because of noncompletion and missing data. Intrusiveness and negative affect were reverse scored.
* $p < .05$.

Table 3
Repeated Measures Analysis of Variance for Quality of Father–Child Interaction Intent-to-Treat Findings With Two Additional Parent Groups

Variable	Control group		Experimental group			
	M	*SD*	*M*	*SD*	*F*	*df*
Warmth and emotional support					3.80*	1, 132
Time 2	4.28	1.43	4.76	1.59		
Time 3	4.41	1.46	4.71	1.59		
Intrusiveness					2.27	1, 132
Time 2	4.31	1.71	4.89	1.43		
Time 3	4.72	1.45	4.81	1.52		
Engagement with child					0.93	1, 132
Time 2	5.37	1.29	5.49	1.40		
Time 3	5.18	1.42	5.41	1.39		
Positive affect					2.71	1, 132
Time 2	4.33	1.39	4.69	1.62		
Time 3	4.52	1.41	4.85	1.57		
Negative affect					3.32	1, 131
Time 2	6.62	0.76	6.32	1.60		
Time 3	6.77	0.66	6.28	1.70		
Dyadic synchrony					9.75**	1, 131
Time 2	2.86	1.40	3.64	1.90		
Time 3	3.08	1.33	3.66	1.76		
Overall quality					3.08	1, 130
Time 2	27.55	6.22	29.78	7.30		
Time 3	28.63	6.29	29.72	6.65		

Note. Time 2 was at 6 months postpartum; Time 3 was at 12 months postpartum. Control group *n*s ranged from 62 to 64; experimental group $n = 70$. Numbers varied because of missing data on some scales.
* $p < .05$. ** $p < .01$.

effect on parallel interaction on work days, which fell just below the .05 significance level with the two groups excluded, was significant in the intent-to-treat analysis (effect sizes .52 at 6 months and .23 at 12 months, translating to 23 more minutes per day in parallel interaction across the two follow-up periods). No other differences emerged in intent-to-treat analyses for other outcome variables.

Discussion

Overall, our findings suggest that a relatively brief couple-oriented group intervention that is theory driven and delivered by community-based parent educators can impact the transition to fatherhood, particularly in men's skills with their infants and in their time involvement during work days. The pattern of findings was consistent for father involvement across two kinds of analysis—one that included only the 15 class groups that received what we believe was an adequate intervention and one that included nine fathers from two additional class groups in an intent-to-treat design. Findings were very similar for father involvement measured by time diaries, but the inclusion of all class groups attenuated the intervention effects for fathers' skills in interacting with their infants.

Of some interest is the intervention's differential pattern of effects: When delivered appropriately, the intervention was strongest in enhancing the quality of fathers' interactional skills with their infants, moderate in affecting their time involvement, and showed no effect for paternal responsibility defined as remembering, planning, and scheduling tasks. We offer several possible explanations for these findings.

First is the possibility of ceiling effects differentially affecting the outcomes. Examination of normative data from the developers of the self-report scales used in this study suggests that we may have recruited a highly motivated group of fathers. Specifically, when we compared the control group with normative data available on scales tapping father attitudes, parenting partnership, and marital adjustment (variables not included in the present study), we found our sample consistently higher than comparison samples reported by developers of the scales. Thus, there may have been a ceiling effect on some of the outcomes based on a sample of fathers who were already committed to active, engaged fathering—with or without the intervention. This would be consistent with Costigan and Cox's (2001) report about self-selection bias in fathers' participation in family research.

If indeed we had an unusually highly motivated sample, then we would expect the very findings reported in this study, that is, the least intervention impact on self-reports such as the Paternal Responsibility Scale (which most directly taps attitudes and motivation), with a somewhat greater effect for the Time Chart (which assesses behaviors affected by motivations and intentions), and the strongest effect for interaction skills (the enactment of which requires learned competencies in addition to motivation and positive attitudes). This reasoning may help explain why findings for interactional skills were more strongly attenuated in the intent-to-treat analysis than

Table 4
Repeated Measures Analyses of Variance for Father Involvement Intent-to-Treat Findings With Two Additional Parent Groups

Variable	Control group		Experimental group			
	M	*SD*	*M*	*SD*	*F*	*df*
Paternal responsibility					0.12	1, 135
Time 2	35.09	5.28	35.82	3.59		
Time 3	35.69	4.59	35.44	3.97		
Home day involvement						
Engaged interaction					0.11	1, 88
Time 2	3.30	1.66	3.26	1.62		
Time 3	3.14	1.80	3.00	1.33		
Parallel interaction					1.28	1, 88
Time 2	1.97	1.51	2.08	2.32		
Time 3	2.44	1.64	3.07	2.08		
Total accessibility					0.07	1, 88
Time 2	14.75	2.31	14.29	2.19		
Time 3	14.17	2.44	14.42	1.95		
Work day involvement						
Engaged interaction					0.72	1, 91
Time 2	1.56	0.81	1.74	0.92		
Time 3	1.61	1.04	1.70	1.01		
Parallel interaction					4.45*	1, 91
Time 2	0.53	0.66	0.91	1.03		
Time 3	0.63	0.68	0.81	0.92		
Total accessibility					4.47*	1, 91
Time 2	6.52	1.57	7.29	2.06		
Time 3	6.24	1.83	6.81	2.50		

Note. Time 2 was at 6 months postpartum; Time 3 was at 12 months postpartum. Paternal Responsibility Scale *n*s were 65 for the control group and 72 for the experimental group. Time Chart *n*s ranged from 39 to 45 for the control group and from 48 to 51 for the experimental group because of noncompletion and missing data. Intrusiveness and negative affect were reverse scored.
* $p < .05$.

were the Time Chart outcomes. A lower "dosage" of the intervention would mean less learning of new behavioral competencies, whereas exposure to the intervention classes alone may have increased fathers' desire to spend more time with their infants. This reasoning also suggests that a less highly motivated group of fathers might be affected more strongly in all three dimensions: self-reported parenting responsibility, level of time involvement, and interactional skills. This is worthy of future exploration.

A second explanation of our differential findings relates to the social construction of fathering in couple relationships. It might be easier to affect fathers' individual skills in relating one-to-one with their babies than to affect their everyday time and partnership involvement with mothers, as the latter are a product of how couples negotiate their roles in a broader social environment that supports a traditional division of parental labor. In other words, the traditional division of infant care is so much a part of the fabric of American society, and so ingrained in people's sense of how children "should" be cared for, that even a carefully designed intervention can expect to have only limited effects. Perhaps some things can be changed only if the larger society changes.

Third, we considered the possibility that variation in the delivery of the intervention might have reduced its impact on some dimensions and not others. As mentioned before, we were concerned about this variability. Qualitative analyses not reported here revealed considerable variation in the pedagogical skills of the educators delivering the classes, as well as rapport levels within the groups. To test the hypothesis that variation in educational delivery affected the outcomes, we computed an evaluation score for each of the 17 intervention class groups, based on parent scores, parent educator scores, and observer scores, using variations of the same five evaluation questions (how helpful were the topics, how well was the class taught, how much did you learn in the class and specifically from the other couples, and would you recommend this class to others?). We summed scores from the five questions and divided the class groups into tertiles based on high, medium, and low evaluation scores. The goal was to create an overall measure of the quality of the delivery of the educational intervention and to determine whether father outcome scores differed by quality of the intervention delivery. There were no significant differences found for any of the outcomes, suggesting that how the program was delivered (as perceived by parents, educators, and observers, whose scores were highly intercorrelated) did not account for differential impact of the intervention on domains of parenting.

We also must consider attrition issues. As noted, there were no baseline differences between dropouts and those who stayed in the study. However, there was differential attrition between the intervention group and control groups (19 versus 4 couples, respectively), something we had expected because of the greater demands of an intervention spread over about 9 months. It is possible that the dropouts were less influenced by the intervention, thus biasing the findings. To this point, we offer the following additional details about dropouts: (a) 9 couples dropped out before the first class and thus received no intervention, (b) 5 couples took only a few of the classes before dropping out, and (c) 5 couples finished the intervention but did not provide follow-up outcome data. Beyond baseline characteristics reported earlier, we looked at possible differences between dropouts and continuing participants on the potential confounding factors of attitudes toward fathering and marital adjustment (measures not reported in this study) and found none. Although differential group attrition rates are always worrisome in an intervention study, we do not believe our study's overall findings are compromised.

One finding worthy of further exploration is the differential effect of the intervention on fathers' workday involvement with their infants. Studies of the influence of father identity on involvement found a similar differential (Manke, Seery, Crouter, & McHale, 1994; McBride & Rane, 1997). In a methodological analysis of measures of father involvement, Chuang, Lamb, and Hwang (2004) found only weak correlations between measures of fathers' weekday and weekend accessibility. Qualitative methods might be useful to explore whether fathers view their parenting differently on work versus home days. One speculation for the current study's findings is that fathers may be more intentional about spending time with their children on work days, when the time is more limited than on at-home days, and thus may be more likely to increase this time when exposed to an educational intervention. It is important to note that we found an effect for overall accessibility time but not for the more direct engagement time. Perhaps the intervention motivated fathers to be home with their child more often after work, but not necessarily to spend more face-to-face time. On the other hand, the intervention did increase fathers' interactional skills, which they could apply during their face-to-face time with their infants.

Because ours was a well-educated sample, results may not apply to other populations. However, we might expect stronger effects with groups of fathers in community settings where they are not being asked to join an intensive research study that requires special motivation. High-risk fathers might be a particularly promising group, although the curriculum would have to be adapted to their needs.

Finally, this study shows the advantages and challenges of doing family intervention research with low-risk populations in community settings. Advantages include greater transportability because we used community medical settings and front-line professionals, as opposed to university labs and specially trained interventionists. Challenges include designing an intervention that is of acceptable intensity and duration for a busy, low-risk population; variability in intervention quality that can diminish the effectiveness of the intervention; and potential ceiling effects from recruiting low-risk but highly motivated participants (stronger effects typically can be expected with high-risk, highly motivated participants). Given these challenges, the fact that we found modest intervention effects in this study speaks well for the potential value of theory-based educational interventions for low-risk fathers in community settings.

References

Belsky, J., & Kelly, J. (1994). *The transition to parenthood.* New York: Dell.

Chuang, S. S., Lamb, M. E., & Hwang, C. P. (2004). Internal reliability, temporal stability, and correlates of individual differences in paternal involvement: A 15-year longitudinal study in Sweden. In R. D. Day & M. E. Lamb (Eds.), *Conceptualizing and measuring father involvement.* Mahwah, NJ: Lawrence Erlbaum.

Costigan, C. L., & Cox, M. J. (2001). Fathers' participation in family research: Is there a self-selection bias? *Journal of Family Psychology, 15,* 706–720.

Cowan, C. P., & Cowan, P. A. (1992). *When partners become parents.* New York: Basic Books.

Cowan, C. P., Cowan, P. A., Coie, L., & Coie, J. D. (1978). Becoming a family: The impact of a first child on the couple's relationship. In W. B. Miller & L. F. Newman (Eds.), *The first child and family formation* (pp. 296–324). Chapel Hill, NC: Carolina Population Center, University of North Carolina Press.

Cox, M., Owen, M. T., Lewis, J. M., Riedel, J. C., Scalf-McIver, L., & Suster, A. (1985). Intergenerational influences on the parent-infant relationship in the transition to parenthood. *Journal of Family Issues, 6,* 543–564.

Doherty, W. J., Kouneski, E. F., & Erickson, M. F. (1998). Responsible Fathering: An overview and conceptual framework. *Journal of Marriage and Family, 60,* 277–292.

Entwisle, D. R., & Doering, S. G. (1981). *The first birth: A family turning point.* Baltimore, MD: Johns Hopkins University Press.

Erickson, M. F., & Egeland, B. (1990). *Child Play Rating Scales.* Minneapolis, MN: Project STEEP, University of Minnesota.

Erickson, M. F., Korfmacher, J., & Egeland, B. R. (1992). Attachments past and present: Implications for therapeutic intervention with mother-infant dyads. *Development and Psychopathology, 4,* 495–507.

Erickson, M. F., Sroufe, L. A., & Egeland, B. (1985). The relationship between quality of attachment and behavior problems in preschool in a high-risk sample. In I. Bretherton & E. Waters (Eds.), *Child Development Monographs, 50*(1–2), 147–166.

Fein, R. A. (1976). Men's entrance into parenthood. *The Family Coordinator, 24,* 341–348.

Feldman, S. S., Nash, S. C., & Aschenbrenner, B. G. (1983). Antecedents of fathering. *Child Development, 54,* 1628–1636.

Ihinger-Tallman, M., Pasley, K., & Beuhler, C. (1995). Developing a middle-range theory of father involvement postdivorce. In W. Marsiglio (Ed.), *Fatherhood: Contemporary theory, research, and social policy* (pp. 57–77). Thousand Oaks, CA: Sage.

Jordan, P. L. (1995). The mother's role in promoting fathering behavior. In J. L. Shapiro, M. J. Diamond, & M. Greenberg (Eds.), *Becoming a father: Contemporary, social, developmental, and clinical perspectives* (pp. 61–71). New York: Springer.

LaRossa, R., & LaRossa, M. (1981). *Transition to parenthood: How infants change families.* Beverly Hills, CA: Sage.

Mahoney, G., & Powell, A. (1986). The Maternal Behavior Rating Scale. *Topics in Early Childhood Special Education, 6,* 44–56.

Manke, B., Seery, B. L., Crouter, A. C., & McHale, S. M. (1994). The three corners of domestic labor: Mothers', fathers', and children's weekday and weekend housework. *Journal of Marriage and the Family, 56,* 657–668.

Marsiglio, W., Amato, P., Day, R. D., & Lamb, M. E. (2000). Scholarship on fatherhood in the 1990s and beyond. *Journal of Marriage and Family, 62,* 1173–1191.

May, K. A. (1982). Factors contributing to first-time fathers' readiness for fatherhood: An exploratory study. *Family Relations, 31,* 353–361.

McBride, B. A. (1990). The effects of a parent education/play group program on father involvement in child rearing. *Family Relations, 39,* 250–256.

McBride, B. A. (1991). Parent education and support programs for fathers: Outcome effects on paternal involvement. *Early Child Development, 67,* 73–85.

McBride, B. A., & Mills, G. (1993). A comparison of mother and father involvement with their preschool age children. *Early Childhood Research Quarterly, 8,* 457–477.

McBride, B. A., & Rane, T. R. (1997). Role identity, role investments, and paternal involvement: Implications for parenting programs for men. *Early Childhood Research Quarterly, 12,* 173–197.

Parke, R. D. (1996). *Fatherhood.* Cambridge, MA: Harvard University Press.

Pianta, R., Erickson, M. F., Wagner, N., Kreutzer, T., & Egeland, B. (1990). Early predictors of referral for special services: Child-based measures versus mother-child interaction. *School Psychology Review, 19,* 240–250.

Pleck, J. H. (1997). Paternal involvement: Levels, sources, and consequences. In M. E. Lamb (Ed.), *The role of the father in child development.* Third edition. Hillsdale, NJ: Lawrence Erlbaum.

Pleck, J. H., Lamb, M. E., & Levine, J. A. (1985). Epilog: Facilitating future change in men's family roles. In R. A. Lewis & M. Sussman (Eds.), *Men's changing roles in the family* (pp. 11–16). New York: Haworth Press.

Thomas, R., Anderson, L., Getahun, L., & Cooke, B. (1992). *Teaching for transfer of learning. Berkeley.* Berkeley, CA: National Center for Research in Vocational Education.

Walzer, S. (1998). *Thinking about the baby: Gender and transitions to parenthood.* Philadelphia: Temple University Press.

Wical, K., & Doherty, W. J. (2005). How reliable are fathers' reports of involvement with their children? A methodological report. *Fathering, 3,* 81–91.

Wolfson, A., Lacks, P., & Futterman, A. (1992). Effects of parent training on infant sleeping patterns, parents' stress, and perceived parental competence. *Journal of Consulting and Clinical Psychology, 60,* 41–48.

Appendix

Parenting Together Project: Overview of Curriculum

Session 1

Goals. Engender ongoing commitment to the program, awareness of influences on parenting, and personal vision for couple/co-parental/parenting relationships.

Intervention. Further explain program and address concerns. Discuss couple concerns regarding transition to parenthood and parenting and ways in which the program may address these concerns. Discuss the influences affecting the transition to parenthood and parenting in the context of developing a "mission statement" for the family. Specifically address (a) vision for and values of the family, (b) self assessment regarding couple relationship and parenting readiness (experience in child care), (c) how the couple is similar/different to their parents, and (d) supports and barriers to the vision for the family.

Context. Home visit, 4–6 months pre-birth, time length = 1.5 hr.

Session 2

Goals. Develop realistic expectations for the transition to parenthood and of spousal actions, strengthen couple relationship and communication skills, address work/family balance issues.

Intervention. Develop group cohesiveness through having couples talk together about what changes they expect to take place, sharing excitement and fears about changes. Discuss the impact of expectations on the transition to parenthood and sources of the expectations, break into gender groups to identify specific expectations, return to the larger group to report expectations, and note differences between groups; address the need for strong relationship/communications skills, introduce and reinforce assertiveness skills and productive patterns of problem resolution, and conduct skills practice; discuss the impact of the child on the couple relationship; identify and discuss work and family tensions along with strategies to deal with conflicts; in the context of the day's learning, have couples develop a plan to support the couple relationship and to share parenting responsibilities.

Context. Group meeting, 3–4 months pre-birth, time length = 2 hr.

Session 3

Goals. Strengthen the couple/co-parental relationship, support positive attitude toward parenting (specifically father involvement).

Intervention. Large-group discussion of connections among couple relationship, parenting, and communications; role-playing exercise involving communications skills; identifying the strength of having both parents seen as competent caregivers; identifying caregiving and parenting skills in gender groups (safe place, legitimizing skills); discussion of barriers to practicing skills (unsure of skills, particularly among fathers; differences seen as incompetence on father's part); have couples share with each other the skills they want to work on for self and other.

Context. Group meeting, 2–3 months pre-birth, time length = 2 hr.

Session 4

Goals. Strengthen parenting skills and the couple/co-parental relationship; motivate parents to be involved with their children.

Intervention. Identify and discuss previous learning in child care activities; participation of parents with infants to demonstrate different skills and share infants with program participants; encourage couples to practice skills and reinforce competencies by having spouses share the competencies they see in each other; bring out couple/co-parenting plan and specifically address division of child care/housework (emphasizing connection between housework and child care); make adjustments as needed to couple/co-parenting plan as needed.

Context. Group meeting, 1–2 months pre-birth, time length = 2 hr.

Session 5

Goals. Strengthen couple/co-parental relationship and appreciation of infant responsiveness.

Intervention. Have parents introduce their infants to the larger group and share birth stories; compare real-life experience with couple/co-parenting plan (highlight the need to be flexible and make necessary changes); problem solve with group to identify necessary changes; discuss how infants begin communication at an early age, the ways in which they communicate, what the different indicators mean, and how to respond.

Context. Group meeting (infants present), 1 month post-birth, time length = 2 hr.

Session 6

Goals. Active support of parental involvement, co-parenting, and skills; address work and family issues.

Intervention. Have couples share in the group setting their experiences of the transition to parenthood, co-parenting, couple relationship, and work and family issues; specifically address barriers to co-parenting and father involvement; discuss the value of rituals in the couple relationship and have couples identify a meaningful ritual to implement in their lives; have couples address parenting plan together and then, in the larger group, have couples share the changes they have made.

Context. Group meeting (infants present), 2 months post-birth, time length = 2 hr.

Session 7

Goals. Active support of parental involvement, co-parenting, and skill; address work and family issues; bring closure to the group experience.

Intervention. Talk with parents in a supportive manner about their experiences, identify issues and how they affect parental involvement with children, strategize in a collaborative manner to problem solve, specifically identify communication skills that can be used to address issues and reinforce their use in problem solving, discuss ending of group process, provide refreshments, and give time to process the end of the group.

Context. Group meeting, 3 months post-birth, time length = 2 hr.

Session 8

Goals. Reinforce learning and positive behavioral changes in the parenting and co-parental relationship; work on future partnership.

Intervention. Discuss with parents their experience of the transition to parenthood, educational experience, and changes in the couple relationship. Support positive choices and behaviors, identify ongoing problematic issues, strategize in a collaborative and supportive manner to problem solve, discuss strength of using resources, identify resources available, and encourage use.

Context. Group meeting, 6 months post-birth, time length = 2 hr.

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